SCIENCE ABSTRACTS, SERIES A

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SUBJECT INDEX–PART I

INTRODUCTION

The entries in this index refer to the abstracts by their serial number, not by the page number. The entries are grouped under headings (printed in bold type, e.g. "**Abrasion**") which represent, in the main, general categories or concepts rather than specific names. If a heading for a particular subject does not appear, a more general heading should be consulted; for example, "Zone plates" would be listed under "**Diffraction/light**"; "Barkhausen discontinuities" under "**Magnetization process**". There are numerous cross-references directing attention to related headings in other parts of the index.

Many of the headings are subdivided by the use of subheadings, which are indented (i.e. printed slightly to the right) and commence with a small letter (for example, see the subheadings under "**Absorption**").

ARRANGEMENT OF HEADINGS AND SUBHEADINGS

The headings are arranged throughout the index in alphabetical order according to British Standard 1749:1951 (the "word by word" system, not "reading right through"). The subheadings, with a few exceptions, are themselves arranged in alphabetical order under their respective headings. The exceptions (for example, see the subheadings under "**Spectra**", "**Crystal structure, atomic**") are cases where a more logical order is preferable to a purely alphabetical one.

ARRANGEMENTS OF ENTRIES UNDER HEADINGS

Entries are arranged in two alphabetical groups as follows. First group: generalities and named substances (in words); second group: named substances (chemical formulae). If a search is being made for a particular substance, both the first and second alphabetical groups should be inspected since, for example, alumina may also be listed as Al_2O_3.

COLLECTED LIST OF SUBJECT HEADINGS

The alphabetical arrangement of the headings is the most convenient for locating a known heading quickly, but there may be other related headings elsewhere in the index of which the reader is unaware, and which he would only come across by accident. To assist the reader to discover all the headings appropriate to his subject, a collected list of the headings is given on pages S2 to S16, which follow this page; they should be consulted as a matter of routine each time a search is made. In this list, the headings are not arranged in alphabetical order, but are grouped into sections by subject on the same basis as the arrangement of the abstracts in the monthly issues of Physics Abstracts. By using this list, the reader can quickly determine which are the headings appropriate to his subject, and they are then easily found in the main index in their alphabetical position.

HEADINGS WITH NO ENTRIES

Because physics is a developing subject, it is not possible to maintain the list of headings unchanged from year to year; it is subject to a continuous process of revision, with the introduction of new headings and subheadings, and the alteration and elimination of old ones. This process is a gradual one, however, and the great majority of the headings are the same as those of the previous year. To assist in maintaining the continuity of the index, all the headings in current use in a given year are printed, even those for which there are no abstracts to be recorded. The latter are followed by the announcement "No entries"; this supplies confirmation that these headings have not been dropped from the index, and entries may reappear under them in the next issue of the index.

ELEMENTS, COMPOUNDS AND OTHER SUBSTANCES

The names of elements, their compounds, a few compounds of special interest (e.g. "**Ruby**", "**Water**") and a few common materials (e.g. "**Wood**", "**Paper**") are included as headings or subheadings (e.g. "**barium titanate**" under "**Barium compounds**"). Under these, as well as under the appropriate "subject" headings, are listed any abstracts which contain significant physical information about the element, compound or substance named; except however, that abstracts listed under headings referring to nuclear properties, including radioactivity, are not necessarily also listed under the substance name. The entries under these headings are themselves arranged in alphabetical order of substance or nuclide names, so that a given substance can be readily located.

Inorganic compounds of the elements are listed under the first element in the chemical formula, and all the compounds of a given element are grouped under a single heading (e.g. "**Sodium compounds**"). Alloys are listed under compounds of the base or first-named constituent, e.g. Au–Ag alloys under "**Gold compounds**". There are also four special headings for the common alloys: "**Aluminium alloys**", "**Copper alloys**", "**Iron alloys**", "**Nickel alloys**". Organic compounds are grouped under "**Organic compounds**", "**Polymers**", "**Plastics**" and under special substance headings such as "**Paper**", "**Proteins**", etc.; all the latter are listed in the collected list of headings at the end of the index.

BEFORE USING INDEX, CONSULT LIST OF SUBJECT HEADINGS ON PAGES S2-S16, WHICH FOLLOW THIS PAGE

LIST OF SUBJECT INDEX HEADINGS

The headings used in the Alphabetical Index are listed below. The headings are grouped into sections on the same basis as the arrangement of the abstracts in the monthly issues of Physics Abstracts. Each section lists the headings which concern its subject and it follows that many of the headings are listed in several places.

An introduction to the Subject Index will be found on page S423.

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Area measurement
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Plasticity
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Thermodynamics

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  acoustic
Speech

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electrical
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Magnetic measurement
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Inductance

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Interferometry/
    electromagnetic waves
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- Baryons

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- Tritons

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- detection, measurement
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Explosions/
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Nuclear fusion

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Thermonuclear reactions

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Chemical analysis/
- by nuclear reactions

Chemical effects of radiations/
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- production
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Nuclear reactions
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Plasma
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Radiation monitoring
Radiation protection
Radiochemistry
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Collision processes
Orbital calculation methods
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Atomic beams
Atomic mass and weight
Atoms
  electron scattering
  excitation
  magnetic moment
  structure
Collision processes
Electron emission/
  photoelectric
Elements
  origin
  relative abundances
Gyromagnetic ratio
Ionization potential
Luminescence
  gases
Optical pumping
Orbital calculation methods
Periodic system
Spectra
  atoms
Spectral line breadth
Stark effect
Zeeman effect

Isotopes

Isotope effects
Isotope exchanges
Isotope separation
Isotopes
  detection
  relative abundances
Mass spectra
Mass spectrometers/
  applications
Radioactive dating
Radioactive tracers
Radiochemistry
Tracers

Mesic and Muonic Atoms

Atoms, mesic and muonic

MOLECULES

Molecules

Structure · Internal Mechanics Spectra

Bonds
Chemical structure
Isomerism
Luminescence
  gases
Molecular weight
Molecules
  configuration and dimensions
    inorganic
    organic
  excitation
  internal mechanics
  electronic structure
  electronic structure, inorganic
  electronic structure, organic
  nuclear coupling
  rotation
  vibration
  moments
Optical pumping
Orbital calculation methods
Raman spectra
  inorganic
  organic
Spectra
  inorganic molecules
    diatomic
    diatomic, radiofrequency
    polyatomic
    polyatomic, radiofrequency
  inorganic liquids and solutions
  inorganic solids
    radiofrequency
  organic molecules and substances
    infrared
    radiofrequency
Spectral line breadth
Stark effect
Valency
Zeeman effect

Magnetic Resonances

Magnetic resonance and relaxation
Molecules/
  nuclear coupling
  relaxation
Nuclear magnetic resonance and relaxation
Nuclear quadrupole resonance
Paramagnetic resonance and relaxation

Dissociation · Free Radicals

Association
  gases
Free radicals
Heat of dissociation
Molecules/
  dissociation
  dissociation energies

Intermolecular Mechanics

Collision processes
Molecular beams
Molecules/
  intermolecular mechanics

Macromolecules · Polymers

Association
Heat of formation
Isomerism
Macromolecules
Molecules/
  configuration and dimensions, macromolecules
Polymers
Proteins

Mesic and Muonic Molecules

Molecules, mesic and muonic

ELECTRIC DISCHARGES

Arcs, electric
Breakdown, electric
  gases
Corona, electric discharge
Discharges, electric
  glows
  high-frequency
Gas-discharge tubes
Lightning
Sparks, electric
Sputtering

IONIZATION

Dissociation
Ion velocity
Ionization
  gases
Ionization potential
Ionization, surface
Ions
  recombination
  scattering
Shock waves/
  effects
Space charge

PLASMA

Discharges, electric
  glows
  high-frequency
Electron gas
Ionization
  gases
Nuclear fusion
Nuclear reactors, fusion
Plasma
  electromagnetic wave propagation
  magnetohydrodynamics
  measurement techniques
Shock waves/
  effects
Space charge
Thermonuclear reactions

Plasma Confinement

Plasma/
  confinement

Plasma Oscillations and Stability

Plasma/
  magnetohydrodynamics
  oscillations
  stability

Plasma Devices

Nuclear reactors, fusion
Plasma/
  devices

FLUIDS

Flow
Fluids
Hydrodynamics
Hydrostatics
Oscillations
Turbulence
Viscosity
Vortices
Waves

MECHANICS OF GASES

Acoustic streaming
Aerodynamics
Anemometers
Compressibility/
    gases
Condensation
Density/
    gases
Diffusion in gases
    thermal
Flow/
    gases
Flowmeters
Gases
Humidity
Hygrometers
Jets
Manometers
Moisture
Pressure
Pumps
Radiation pressure
Supersonic flow
Turbulence
Viscometers
Viscosity/
    gases
Vortices
Waves

GASEOUS STATE

Absorption/
    acoustic waves
    acoustic waves, ultrasonic
    electromagnetic waves
    light
Association/
    gases
Breakdown, electric/
    gases
Conductivity, electrical/
    gases
    measurement
Conductivity, thermal/
    gases
    measurement
Dielectric properties of substances/
    gases
Diffraction/
    acoustic waves
    acoustic waves, ultrasonic
    electromagnetic waves
    light
Diffusion/
    acoustic waves
    electromagnetic waves
    light
Electrical properties of substances
Electroluminescence
Equations of state/
    gases
Gases
Helium/
    gas
Interference/
    acoustic waves
Joule—Thomson effect
Kinetic theory/
    gases
Lasers/
    gaseous
Luminescence/
    gases
Magnetic resonance and relaxation
Molecules/
    intermolecular mechanics
Nuclear magnetic resonance and relaxation
Nuclear quadrupole resonance
Optical properties of substances
Paramagnetic resonance and relaxation
Reflection/
    acoustic waves
    acoustic waves, ultrasonic
    electromagnetic waves
    light
Refraction/
    acoustic waves
    acoustic waves, ultrasonic
    electromagnetic waves
    light
Scattering/
    acoustic waves
    acoustic waves, ultrasonic
    electromagnetic waves
    light
Sorption
Specific heat/
    gases
Spectra
Statistical mechanics
Thermoluminescence
Transmission/
    acoustic waves
    acoustic waves, ultrasonic
    light
Velocity/
    acoustic waves
    acoustic waves, ultrasonic

Viscosity · Diffusion

Diffusion in gases
    thermal
Transport processes
Viscosity/
    gases

VACUUM PHYSICS

Glass—metal seals
Leak detection
Manometers
Sputtering
Vacuum apparatus
Vacuum gauges
Vacuum pumps
Vacuum technique

MECHANICS OF LIQUIDS

Acoustic streaming
Bubbles
Capillarity
Cavitation
Compressibility/
  liquids
Density/
  liquids
Diffusion in liquids
  thermal
Double refraction/
  flow
Drops
Elasticity/
  liquids
Emulsions
Films/
  liquid
Filters
Flow/
  liquids
Flowmeters
Foams
Hydrodynamics
Hydrostatics
Jets
Liquid oscillations
Liquid waves
  surface
Lubrication
Moisture
Pressure
Pumps
Radiation pressure
Rheology
Schlieren systems
Sprays
Surface energy
Surface tension
Surface tension measurement
Thixotropy
Turbulence
Viscometers
Viscosity/
  liquids
Vortices
Wetting

LIQUID STATE

Liquids

Theory and Structure of Liquids Solutions

Association/
  liquids
Electron diffraction examination
Equations of state/ [of materials
  liquids
Films/
  liquid
Heat of solution
Liquid crystals
Liquids
  structure
  theory
Neutron diffraction examination of [materials
Neutrons/
  scattering
Polymers
Solubility
Solutions
X-ray examination of materials/
  liquids

Viscosity · Surface Tension · Diffusion

Diffusion in liquids
  thermal
Filters
Membrances
Osmosis
Sorption
Surface tension
Surface tension measurement
Transport processes
Viscosity/
  liquids

Optical Properties of Liquids

Absorption/
  electromagnetic waves
  light
Diffraction/
  electromagnetic waves
  light
Diffusion/
  electromagnetic waves
  light
Double refraction
  flow
Electroluminescence
Luminescence/
  liquids and solutions
Optical pumping
Optical properties of substs.
Raman spectra
  inorganic
  organic
Reflection/
  electromagnetic waves
  light
Refraction/
  electromagnetic waves
  light
Scattering/
  electromagnetic waves
  light
Spectra/
  inorganic liquids and solutions
Thermoluminescence
Transmission/
  light

Thermal Properties of Liquids

Conductivity, thermal/
  liquids
  measurement
Heat of solution
Specific heat/
  liquids
Thermal expansion
Thermodynamic properties

Acoustical Properties of Liquids

Absorption/
  acoustic waves
  acoustic waves, ultrasonic
Acoustic wave propagation
  ultrasonic
Diffraction/
  acoustic waves
  acoustic waves, ultrasonic
Diffusion/
  acoustic waves
Interference/
  acoustic waves
Reflection/
  acoustic waves
  acoustic waves, ultrasonic
Refraction/
  acoustic waves
  acoustic waves, ultrasonic
Scattering/
  acoustic waves
  acoustic waves, ultrasonic
Transmission/
  acoustic waves
  acoustic waves, ultrasonic
Velocity/
  acoustic waves
  acoustic waves, ultrasonic

Electrical and Magnetic Properties of Liquids

Absorption/
  electromagnetic waves
Breakdown, electric/
  liquids
Conductivity, electrical/
  liquids
  liquids, electrolytic
  measurement
Dielectric properties of substs./
  liquids and solutions
Electrical properties of substs.
Ionization, liquids
Magnetic properties of substs.
Magnetic resonance and relaxation
Metals
Nuclear magnetic resonance and [relaxation
Nuclear quadrupole resonance
Paramagnetic resonance and [relaxation
Semiconducting materials
Semiconductors

DISPERSIONS · COLLOIDS

Aerosols
Centrifuges
Colloids
Disperse systems
Electrophoresis
Emulsions
Filters
Foams
Gels
Heat of solution
Membranes
Osmosis
Particle size
Precipitation
Sedimentation
Sols
Solubility
Solutions
Surface phenomena
Suspensions
Thixotropy

CHANGE OF STATE

Boiling
Boiling point
Condensation
Critical constants, thermal
Distillation
Drying
Equations of state
  gases
  liquids
  solids
Evaporation
Freezing
Heat of fusion
Heat of sublimation
Heat of transformation
Heat of vaporization
Humidity
Liquefaction, gases
Melting
Melting point
Phase equilibrium
Phase transformations
Sublimation
Supercooling
Vapour pressure
Vapour pressure measurement
Vaporization

SOLID-STATE PHYSICS

Bonds
Crystals
    internal fields
Crystal properties
Equations of state/
    solids
Metals
    theory
Mössbauer effect
Nuclear orientation
Orbital calculation methods
Solids
    structure
    theory

STRUCTURE OF SOLIDS · ALLOYS

Alloys
Crystal structure
Density/
    solids
Fibres
Filters
Granular structure
Heat treatment
    alloys
Membranes
Particle size
Permeability, mechanical
Polymorphism
Porous materials
Powders
Sintering
Solids
    structure
Solid solutions
Solubility

Solid-State Phase Transformations

Heat treatment
    alloys
Phase equilibrium
Phase transformations/
    solid-state
Polymorphism
Precipitation

Surfaces

Surface energy
Surface measurement
Surface phenomena
Surface texture

Films

Evaporation
Films/
    solid
Sputtering
Sublimation

Adsorption

Adsorbed layers
Adsorption
Heat of adsorption
Sorption

NON-CRYSTALLINE STATE

Amorphous state
Glass
Plastics
Polymers
Rubber
Vitreous state
Waxes

CRYSTALLOGRAPHY

Crystal chemistry
Crystal properties
Crystal structure
Crystallization
Crystallography
Crystals
    etching
    faces
    growth
    orientation
    twinning
    whiskers
Minerals
Polymorphism
Precipitation
Solids/
    structure
Surface texture
Zone melting and refining

MICROSTRUCTURE OF SOLIDS

Amorphous state
Crystal structure/
    microstructure
Electron diffraction examination [of materials
Electron microscope examination [of materials
Electron microscopy
Fibres
Granular structure
Ion microscopes
Metallurgy
Microscopy
Neutron diffr. exam. of materials
Particle size
Porous materials
Powders
Radiography
Surface texture
X-ray examination of materials/
    microstructure
    molecular structure

CRYSTAL LATTICE STRUCTURES

Crystal structure, atomic
    elements
    alloys
    inorganic compounds
    organic compounds
Electron diffraction crystallography
Electron diffraction examination [of materials
Electron microscope examination [of materials
Neutron diffraction crystallography
Neutron diffraction examination [of materials
Polymers
X-ray absorption
X-ray crystallography
    apparatus
    calculation apparatus
    calculation methods
    technique
X-ray diffraction
X-ray examination of materials/
    molecular structure
X-ray measurement
X-ray monochromators
X-ray reflection
X-ray scattering
X-ray tubes

LATTICE MECHANICS

Crystals/
    lattice mechanics
Mössbauer effect

ACOUSTICAL PROPERTIES OF SOLIDS

Absorption/
    acoustic waves
    acoustic waves, ultrasonic
Acoustic wave propagation
    ultrasonic
Acoustoelectric effects
Diffraction/
    acoustic waves
    acoustic waves, ultrasonic
Dispersion, acoustic
    ultrasonic
Magnetoacoustic effects
Reflection/
    acoustic waves
    acoustic waves, ultrasonic
Refraction/
    acoustic waves
    acoustic waves, ultrasonic
Scattering/
    acoustic waves
    acoustic waves, ultrasonic
Transmission/
    acoustic waves
    acoustic waves, ultrasonic
Velocity/
    acoustic waves
    acoustic waves, ultrasonic

THERMAL PROPERTIES OF SOLIDS

Conductivity, thermal/
    measurement
    solids
Equations of state/
    solids
Heat conduction
Specific heat/
    solids
Thermal expansion
Thermodynamic properties

DIFFUSION IN SOLIDS

Diffusion in solids
Permeability, mechanical

DEFECT PROPERTIES OF SOLIDS

Cold working
Creep
Crystal imperfections
dislocations
interstitials
vacancies
Crystal structure
Crystals
etching
twinning
Deformation
Elastic deformation
Electron diffraction examination [of materials
Electron microscope examination [of materials
Heat treatment
alloys
Internal friction
Neutron diffraction examination
Plastic deformation [of materials
Plastic flow
Slip
Stresses, internal
Work hardening
X-ray examination of materials/
microstructure

Colour Centres

Absorption/
light
Colour centres
X-rays/
effects

RADIATION EFFECTS IN SOLIDS

Acoustic waves/
effects
Alpha-rays/
effects
Beta-rays/
effects
Deuterons/
effects
Electron beams/
effects
Gamma-rays/
effects
Hyperons/
effects
Ion beams/
effects
Mesons/
effects
Neutrons and antineutrons/
effects
Physical effects of radiations
Protons and antiprotons/
effects
Sputtering
X-rays/
effects

MECHANICAL PROPERTIES OF SOLIDS

Abrasion
Adhesion
Bending
Brittleness
Cold working
Compressibility
Corrosion
Cracks
Creep
Deformation
Density/
solids
Elastic constants
measurement
Elastic deformation
Elastic fatigue
Elastic limit
Elastic relaxation
Elasticity
Fracture
Friction
Hardness
Heat treatment
alloys
High-pressure phenomena
Hysteresis [and effects
Impact
Internal friction
Lubrication
Magnetomechanical effects
Mechanical properties of substs.
Mechanical strength
compressive
shear
tensile
Photoelasticity
Physical effects of radiations
Plastic deformation
Plastic flow
Plasticity
Rheology
Slip
Strain gauges
Stress analysis
Stress effects
Stress/strain relations
Stresses, internal
Thermoelasticity
Thixotropy
Torsion
Viscoelasticity
Wear
Work hardening

ELECTRON STATES IN SOLIDS

Crystal electron states
excitons
Fermi level
Fermi surface
plasma
polarons
surface
Crystal properties
Cyclotron resonance
Electron beams/
effects
Electron gas
Electron pairs/
annihilation
Electrons
absorption
radiation
scattering
Hall effect
Magnetoacoustic effects
Metals
theory
Piezoresistance
Solids
theory
Surface phenomena

ELECTRICAL PROPERTIES OF SOLIDS

Acoustoelectric effects
Conduction, electrical
Conductivity, electrical/
measurement
solids
Contact potential
Contact resistance
Crystal electron states
Eddy-currents
Electrical properties of substs.
Electron gas
Electro-optical effects
Fluctuations/
electrical
Hall effect
Magnetoelectric effects
Magnetoresistance
Magnetothermal effects
Piezoelectricity
Piezoresistance
Resistance, electrical
Space charge

Metals · Conductors

Electron gas
Hall effect
Magnetoelectric effects
Magnetoresistance
Metals
theory
Piezoresistance
Skin effect

Superconductivity

Superconductivity

Superconducting Materials and Devices

Superconducting materials and devices

Semiconductors

Acoustoelectric effects
Contact potential
Contact resistance
Electron gas
Electro-optical effects
Fluctuations/
electrical
Hall effect
Magnetoelectric effects
Magnetoresistance
Magnetothermal effects
Piezoelectricity
Piezoresistance
Semiconductors
Space charge

Semiconducting Materials

Semiconducting materials
gallium arsenide
germanium
indium antimonide
silicon

Semiconducting Devices

Counters/
semiconductor
Semiconducting devices
diodes
p–n junctions
transistors
tunnel diodes
Rectifiers

Dielectrics

Breakdown, electric/
solids
Contact potential
Dielectric devices
Dielectric measurement
Dielectric phenomena
Dielectric properties of substs./
solids
Electrets
Electric charge
Electric fields
Electric strength
Electrostriction
Ferroelectric materials
barium titanate
Ferroelectric phenomena
Hysteresis
Piezoelectric oscillations
Piezoelectricity
Pyroelectricity
Relaxation
Rochelle salt
Space charge
Triboelectricity

THERMOELECTRIC PROPERTIES OF SOLIDS

Thermocouples
Thermoelectricity

PHOTOCONDUCTIVITY PHOTOVOLTAIC EFFECTS

Photoconductivity
Photoelectricity
Photoelectromagnetic effects
Photovoltaic effects

ELECTRON AND ION EMISSION BY SOLIDS

Cathodes
oxide
Electron emission
field emission
photoelectric
secondary
thermionic
Ion emission
secondary
thermionic
Ionization/
solids
Ionization, surface
Work function

MAGNETIC PROPERTIES OF SOLIDS

Antiferromagnetism
de Haas—van Alphen effect
Diamagnetism
Electron diffraction examination [of materials
Electron microscope examination [of materials
Ferrimagnetism
Ferrites
Ferromagnetism
spin-wave theory
Gyromagnetic ratio
Hall effect
Hysteresis
Magnetic devices
Magnetic fields/
effects
Magnetic films
Magnetic properties of substs.
antiferromagnetic
diamagnetic
ferrimagnetic
ferromagnetic
paramagnetic
transitions
Magnetism
Magnetization process
Magnetization state
domains
Magnetoacoustic effects
Magnetoelectric effects
Magneto-optical effects
Magnetoresistance
Magnetostriction
Magnetothermal effects
Neutron diffraction examination [of materials
Paramagnetism
Zeeman effect

Paramagnetic Properties

Magnetic properties of substances/
paramagnetic
Paramagnetism

Ferromagnetic Properties

Ferromagnetism
spin-wave theory
Hysteresis
Magnetic devices
Magnetic films
Magnetic properties of substances/
ferromagnetic
Magnetization process
Magnetization state
domains

Ferrimagnetic Properties · Ferrites

Ferrimagnetism
Ferrites
Hysteresis
Magnetic devices
Magnetic films
Magnetic properties of substs./
ferrimagnetic

Antiferromagnetic Properties

Antiferromagnetism
Magnetic properties of substs./
antiferromagnetic

MAGNETIC RESONANCES IN SOLIDS

Antiferromagnetic resonance
Cyclotron resonance
Ferrimagnetic resonance
Ferromagnetic relaxation
Ferromagnetic resonance
Gyromagnetic ratio
Magnetic resonance and relaxation
Magnetomechanical effects
Nuclear magnetic resonance and measurement [relaxation
Nuclear quadrupole resonance
Optical pumping
Paramagnetic resonance and measurement [relaxation

OPTICAL PROPERTIES OF SOLIDS

Absorption/
electromagnetic waves
light
Diffraction/
electromagnetic waves
light
Diffusion/
electromagnetic waves
light
Dispersion, optical
Double refraction
mechanical
Electromag. wave propagation
Electro-optical effects
Emissivity
Interference/
light
Lasers/
solid
Magneto-optical effects
Optical constants
Optical films
Optical materials
Optical properties of substances
Optical pumping
Optical rotation
Photoelasticity
Pleochroism
Polarized light
Raman spectra
inorganic
organic
Reflection/
electromagnetic waves
light
Reflectivity
Refraction/
electromagnetic waves
light
Refractive index/
light
Scattering/
electromagnetic waves
light
Spectra/
inorganic solids
radiofrequency
organic molecules and
infrared [substances
radiofrequency
Spectral line breadth
Stark effect
Transmission/
light
Transparency
Velocity/
light
X-ray spectra
absorption
emission
Zeeman effect

Luminescence of Solids

Colour centres
Counters,scintillation
Electroluminescence
Luminescence/
solids, inorganic
solids, organic
Luminescent devices
Thermoluminescence

PHYSICAL CHEMISTRY

Atomic mass and weight
Balances
Bonds
Centrifuges
Chemical structure
Chemical technology
Distillation
Elements
origin
relative abundances
Filters
Isomerism
Laboratory app. and technique
Macromolecules
Molecular weight
Molecular weight determn.
Periodic system
Physical chemistry
Precipitation
Pumps
Quantum chemistry
Sedimentation
Valency

THERMOCHEMISTRY · REACTIONS

Association
gases
liquids
Catalysis
Chemical reactions
Combustion
Corrosion
Crystal chemistry
Detonation
Dissociation
Exchanges, chemical
Explosions
Flames
Heat of adsorption
Heat of combustion
Heat of dissociation
Heat of formation
Heat of reaction
Isotope exchanges
Oxidation
Phase equilibrium
Phase transformations
Polymerization
Polymers
Reaction kinetics
Sorption

ELECTROCHEMISTRY

Conductivity, electrical/
liquids, electrolytic
Dissociation/
electrolytic
Electrochemistry
electrodes
Electrokinetic effects
Electrolysis
Electrolytic deposition
Electrophoresis
Ion velocity/
electrolytic
Ions, electrolytic

PHOTOCHEMISTRY
RADIATION CHEMISTRY
RADIOCHEMISTRY

Chemical effects of radiations
acoustic waves
ionizing radiations
Nuclear reactions/
chemical effects
Photochemistry
Radiochemistry

PHYSICAL METHODS OF CHEMICAL ANALYSIS

Chemical analysis
adsorption
by mass spectrometry
by nuclear reactions
electrochemical
radioactive
X-ray
Chromatography
Radioactive tracers
Spectrochemical analysis
Tracers

GEOPHYSICS

Earth
- age
- composition
- electricity
- heat
- rotation

Geodesy
Geophysical prospecting
Geophysics
Glaciers
Gravity
Minerals
Oceanography
Radioactive dating
Radioactivity
Seawater
Seismic waves
Seismology
Soil

ATMOSPHERE

Anemometers
Atmosphere
- composition
- humidity
- movements
- precipitation
- radioactivity
- structure
- temperature
- thermodynamics

Atmospheric acoustics
Atmospheric electricity
Atmospheric optics
Atmospheric pressure and [density
Atmospheric spectra
Atmospherics
Clouds
Condensation
Electromagnetic wave atmosphere [propagation
Evaporation
Fallout
Fog
Humidity
Hygrometers
Ice
Lightning
Meteorological instruments
Meteorology
Rain
Rockets
Satellites, artificial
Sky brightness
Snow
Sunlight
Thunderstorms
Twilight
Wind

UPPER ATMOSPHERE

Airglow
Atmosphere
- composition
- movements
- radiation belts
- radioactivity
- structure
- temperature
- thermodynamics
- upper

Atmospheric electricity
Atmospheric optics
Atmospheric pressure and [density
Atmospheric spectra
Atmospherics
Aurora
Fallout
Ionization, atmosphere
Meteors
Rockets
Satellites, artificial
Sky brightness
Sunlight
Twilight
Zodiacal light

Ionosphere

Atmospherics
Aurora
Electromag. wave propagation ionosphere
Ionization, atmosphere
Ionosphere
- D-region
- E-region
- F-region

Ionosphere meas. apparatus

SPACE RESEARCH TECHNIQUES

Rockets
Satellites, artificial
Space research
Space vehicles instrumentation

GEOMAGNETISM

Compasses
Earth/
- magnetic field
- magnetic field, variations

Magnetic storms
Rock magnetism

ASTROPHYSICS

Astronomical instruments
Astronomical observations
Astronomical spectra
Astronomy and astrophysics
Celestial mechanics
Cosmic rays
Cosmology
Elements/
- origin
- relative abundances

Gravitation
Interstellar matter
Telescopes/
- astronomical

STARS · GALAXIES

Cosmic radiations, r.f.
Galaxies
- the Galaxy

Interstellar matter
Magnetohydrodynamics
Nebulae
Novae
Stars
- composition
- magnetism
- radiation
- spectra
- structure

Thermonuclear reactions

SOLAR SYSTEM · SUN

Comets
Cosmic rays
Earth
- rotation

Gravitation
Interplanetary magnetic field
Interplanetary matter
Meteorites
Meteors
Moon
Planets
Solar system
Sun
- corona
- eclipses
- flares
- magnetism
- prominences
- radiation
- radiation, corpuscular
- radiation, r.f.
- spectra

Sunspots
Zodiacal light

RADIOASTRONOMY TECHNIQUES

Cosmic radiations, r.f.
Radioastronomy

BIOPHYSICS

Biological effects of radiations
Biological technique and [instruments
Biology
Biophysics
Blood
Dosimetry
Medical science
Physiology
Proteins
Radiation protection
Radiography
Zoology

TECHNIQUE · MATERIALS

Biological technique and instruments
Chemical technology
Heat treatment
- alloys

Laboratory apparatus and technique
Leak detection
Low-temperature technique
Materials
Metallurgy
Vacuum technique
Zone melting and refining

HIGH-PRESSURE TECHNIQUES

High-pressure phenomena [and eff ts

SUBSTANCES

Chemical elements and inorganic compounds

All the chemical elements are listed by name, followed by their compounds, e.g. "Cadmium", "Cadmium compounds".

"Hydrogen" is subdivided by the subheadings "neutral atoms", "neutral molecules", and "ions". "Deuterium" and "Tritium" are independent headings. "Hydrogen compounds" is supplemented by "Ice", "Steam", and "Water".

"Oxygen" is supplemented by "Ozone", and "Carbon" is supplemented by "Diamonds" and "Graphite".

The following inorganic compounds are further subdivided by subheadings as shown:-

- Barium compounds
  - barium titanate*
- Cadmium compounds
  - cadmium sulphide
- Calcium compounds
  - calcium fluoride
- Gallium compounds
  - gallium arsenide**
- Indium compounds
  - indium antimonide**
- Lithium compounds
  - lithium fluoride
- Nitrogen compounds
  - ammonia
  - ammonium compounds
- Potassium compounds
  - potassium bromide
  - potassium chloride
- Sodium compounds
  - sodium chloride
- Zinc compounds
  - zinc sulphide

* Ferroelectric properties are listed under "Ferroelectric materials/barium titanate"

** Semiconducting properties are listed under the corresponding subheadings of "Semiconducting materials"

Organic compounds

Organic compounds are grouped under headings "Organic compounds", "Polymers", "Plastics", "Proteins". "Rochelle salt" is an independent heading.

Substance groups

In addition there are the following headings for groups of elements, compounds or substances:-

- Actinides
- Actinide compounds
- Alkali metals
- Alkali-metal compounds
  - halides
- Alkaline-earth metals
- Alkaline-earth compounds
- Ferrites
- Ferroelectric materials
  - barium titanate*
- Garnets
- Halogens
- Inert gases
- Metals
- Minerals
- Rare-earth metals
- Rare-earth compounds
- Semiconductors
- Semiconducting materials
  - gallium arsenide**
  - germanium**
  - indium antimonide**
  - silicon**
- Transition metals
- Transition-metal compounds

* Used for ferroelectric properties only

** Used for semiconducting properties only

Alloys

General papers on alloys are indexed under "Alloys". Alloys of specified composition are listed under, either

(i) special alloy headings (there are five of them: "Aluminium alloys", "Copper alloys", "Iron alloys", "Nickel alloys", "Steel"), e.g. Al–Ni alloys under "Aluminium alloys", or

(ii) compounds of the base or first-named element, e.g. Mn–Zn alloys under "Manganese compounds", and silicon-iron under "Iron alloys".

Special substances and materials

There are also the following special headings for certain common substances:-

- Air
- Blood
- Ceramics
- Clay
- Coal
- Concrete
- Fibres
- Gelatin
- Glass
- Mica
- Optical materials
- Paper
- Porous materials
- Powders
- Quartz
- Rubber
- Ruby
- Sand
- Seawater
- Soil
- Waxes
- Wood

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